

PHILIP MORRIS MANAGEMENT CORP. INTER-OFFICE CORRESPONDENCE

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TO: Distribution**DATE: February 8, 1993****FROM: Mayada Logue** *ML***RE: Trip Report: ASHRAE, Winter 1993 Meeting**

The following report describes activities which took place at the ASHRAE committee and subcommittee meetings attended by Bill Apple, Dan Hirnikel and myself.

GPC 10: Achieving Acceptable Indoor Environments-B. Apple:

See attachment

SSPC62 Subcommittee on Indoor Air Quality Procedure-B. Apple:

See attachment

Standard 52.2, Air Filter Test Procedures--B. Apple:

See attachment

SSPC62 Subcommittee on Source Control and Air Cleaning--D. Hirnikel:

About thirty minutes was specifically devoted to ETS discussions. Jim Woods "tended to agree with EPA representatives. He said: "ETS should be considered as an additional contaminant source, which requires additional protection/removal equipment." J. Woods also stated that: "15 cfm/person is adequate for the physiological needs of occupants and that ETS should be considered as an additional load." The Subcommittee Chairman, Bud Offerman said: "No Smoking in buildings may be a recommendation submitted by ASHRAE for public review because of the recent EPA document on ETS." That was not done. Subcommittee members were given assignments of review/rewrite draft sections for Chapter 5.0: "Systems and Equipment" due back to the Chairman by April 1, 1993:

- 5.5 Contaminant entrapment from outdoor and underground sources,
(G. Kerr)
- 5.6 Growth of microbiological contaminants in HVAC ducts and plenums,
(J. Woods, P. Morey, M. Sherber)
- 5.7 Indoor contaminant source control with local exhaust, (McIvor and
B. Offerman)
- 5.8 Indoor fuel burning appliances, combustion air requirements,
J. Sabbelli and B. Taylor)
- 5.9 Air filtration for control of particulate phase contaminants, (D. Rivers and
B. Raber)
- 5.10 Air filtration for control of gas phase contaminant and odors, (D. Rivers.
B. Raber)
- 5.11 Humidity requirements } J. Woods and
- 5.12 Microbiological contaminants } P. Morey

Bob Raber, (Farr Filters), was a strong proponent of using additional outside air or special air cleaning devices when building contaminants are high. It was pointed out

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that various emission rates, (such as ETS, copiers, etc.) are not well defined. Jim Woods said: "the Health Subcommittee should determine the levels of contaminants permitted and the Source Subcommittee should then determine cleaning methods required to achieve these levels."

SSPC62 Health and Comfort Subcommittee--M. Logue

Members: J. Samet (Chairman), E. Fickes, M. Hodgson, P. Witorch, L. Holcomb, B. Cain, H. Levin, R. Daynard, M. Logue (non-voting member). In addition, Lee Halthon from OSHA was present as an observer.

Michael Hodgson discussed the problems with the proposed standard becoming a health based standard. He said that because it is impossible to know all contaminants present in the space and the fact that health effects of certain contaminants are unknown, the IAQ Procedure would not be adequate. Other problems include: the question of the appropriate methods to be used to add the health effects of multiple contaminants; dose response; and the fact that most contaminants have not been linked with a specific health endpoint. He recommended an alternative standard based on the thresholds of a 1938 term: ALRA, "as low as reasonably achievable". As to whether the standard should address health?--M. Hodgson recommended that the standard language should not go beyond the current statement which states that it is intended to "minimize the potential for adverse health effects." He went on to say that Professional organizations should defer health based standards to the Regulatory Agencies. He suggested that engineers need to state the assumptions made in the design of a building which could then be reviewed by potential occupants who would then decide whether they want to work in the building.

Jon Samet posed this question to the subcommittee: "Should this organization (ASHRAE), deal with carcinogens; specifically ETS?" After much discussion, the subcommittee decided that the issue of ETS and other carcinogens be left to recognized authorities--specifically EPA and OSHA. Kevin Tiechman told the committee that OSHA will deal with ETS in short order and that: "if OSHA regulates smoking (i.e. bans it in all Federal Buildings but leaves it to individual choice in private and public buildings), ASHRAE should defer to the Federal Standard".

Finally, there was some discussion about what is deemed "acceptable air quality"? What are the tools required for the engineer to make the determination? The issue of the use of panels is debatable because of the panel technology. It was pointed out that although subjective evaluation is used every day in industry, the "Olf Procedure" is not currently based on a consensus but rather on very highly skilled individuals. An observer from the U.S. Air Force stated that the standard they use for "acceptable" is that unless someone is sent home because of an illness due to IAQ, the IAQ is deemed to be "acceptable."

SSPC62: Ventilation for Acceptable IAQ (full committee)--M. Logue

The meeting was called to order by the chairman, Gene Tucker. Unlike previous meetings, observers were not asked to identify themselves. although a sign in sheet was circulated. Gene Tucker made several announcements: the three committee members who were scheduled to rotate off the committee were asked to stay at the request of the Chairman. Their next rotation is scheduled for June, 1994. Beginning

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with the next committee meeting, June 27, 1993 (4-9 pm), there will be an update on all EPA activities. G. Tucker stated that there would be additional working committee meetings (in addition to the summer and winter meetings) in some isolated place. A committee member reminded the Chairman that ASHRAE policy dictates that these meetings must be public.

AGENDA:

1. European Ventilation Guidelines: O. Fanger:

Fanger stated that the European draft standards will include three levels of comfort and indoor air quality (IAQ): A, B or C. He compared these levels with decisions made by consumers "purchasing a cadillac or a subcompact". Europeans will be asked to make conscious decisions about the "quality of if IAQ for which they are willing pay". Discussions around Fanger's presentation included the following:

G. Tucker: "I want to look at the Australian Std as well as the European". By the Summer meeting Gene Tucker will have the draft European Std. which will impact what he feels the ASHRAE STD. should include. He wants this standard to be a health-based one even though Jonathan Samet and Michael Hodgson are uncomfortable with that decision. J. Samet and M. Hodgson stated that there are no guidelines on adverse health effects, nor are there guidelines for susceptible populations". M. Hodgson said that health issues should be deferred to other "agencies" and voiced concern over the liability issues. (The concern over liability issues was brought up at all other meetings I attended in Chicago.) The degree to which the STD should address health issues is far from being resolved.

2. Report from Health and Comfort Sub-Committee: J. Samet:

J. Samet reiterated his position that making this a health-based standard was inappropriate and would raise more liability concerns to the engineer. The subcommittee is still grappling with the definition of a "healthy building"; a California healthy building study currently underway may help in the definition of that term. M. Hodgson strongly recommends the health issues be deferred to other agencies.

3. Proposed Outline of 62-199x: G. Tucker: (See attachment A for details)

1. Purpose
 2. Scope
 3. Definitions
 4. Classification
 5. Design Procedures for Commercial-Institutional Buildings
 - 5.1 Determine the design ventilation rate
 - 5.2 Procedure for minimum ventilation rate
 - 5.3 Procedure for additional ventilation rate
 6. Design Requirements for Residential Buildings
 - 6.1 Single-family residences
 - 6.2 Multi-family residences
 7. Documentation of Design and Operational Guidelines
 8. Operating and Maintenance Procedures
 - 8.1 HVAC system
 - 8.2 Other Activities Affecting Indoor Air Quality
 9. References
- #### APPENDICES

Gene Tucker explained his proposed tables for the appendix. He suggested that the revised standard should be more explicit in the treatment of contaminant sources.

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Specifically, he would list known sources giving max emission rates in mg/hour/m². In addition there would be a list of default emissions if the exact emission rate is not known. The default values will come from the "best available literature." This default value will correspond with a specific additional ventilation rate. If the emission rate is known a formula will be given in order to calculate the appropriate ventilation rate. If a manufacturer provides certification that the product has "low emissions", the minimum ventilation rate would be acceptable. The "minimum ventilation rate" accounts for "people as sources" only. The design engineer must specify all the materials used in the building. The design ventilation rate (DVR)= minimum ventilation rate (MVR)+ addition ventilation rate (AVR). This equation does not take in account any filtration or air cleaning. The full committee voted to accept Gene Tucker's outline. Specific issues concerning this outline will be addressed by the "small working groups", although no clarification was made, I believe these groups to be the subcommittees. One comment: in the agenda, time was allotted for public comments in fact, Gene Tucker allowed for little to no time for public comments on many of the agenda topics.

Seminar 15: Issues Update--M. Logue

Dr. M. Hodgson made a presentation concerning man made mineral fibers (MMMF). This presentation was made to "pacify" anxious ASHRAE members concerning the results of a recently published "Kilburne Study" (fall, 1992). The study claimed that MMMF health effects are similar to those of asbestos. This epidemiological study design was as follows:

- ...1300 current and retired workers
- ...500 selected had 20 years exposure to MMMF
- ...no current controls
- ...no asbestos exposures
- ...standard methodologies used

the results were as follows:

- ...57% response rate
- ...23 of 284 subjects had "mild lung disease"
- ...20 of 284 subjects had "pleural lung disease"
- ...6-10% had some kind of changes "consistent with disease"

Dr. Hodgson listed the "problems" with the study:

- ...there may have been asbestos exposure
- ...the use of "prediction equations" was inappropriate
- ...smoking/MMMF interactions were not considered
- ...the mortality studies do not support Kilburne's conclusions

In conclusion, Dr. Hodgson said: "Until Dr. Kilburne responds to these "problems", ASHRAE members need not change their policies vis a vis MMMF."

Environmental Health Full Committee--M. Logue

All observers were asked to identify themselves and their affiliations. A member from the Technical Handbook was in attendance to ask the full committee to reaffirm that the committee had acted accordingly with the addition on the "Combustion Products" portion of the chapter for the Handbook. John Talbot, Chairman, asked the committee to vote on that issue after allowing E. Sterling and L. Holcomb to comment. They both stated their feelings that the Committee acted inappropriately--the Chairman did not respond to their comments. The full committee unanimously voted that they had acted accordingly. I spoke with the gentleman from the Technical Committee to tell him that I had

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corresponded with the Committee and wanted to share my experiences with him. I told him that I had reviewed the draft chapter and after the June 1992 meeting I had sent Bud Offerman published articles on ETS. I then received a letter thanking me for the information but was told that the Committee had decided not to make any changes to the draft chapter and it was only now that I learned of the changes. He asked me if he could relate that information to the Technical Committee and I said "yes". Later, I learned that the same thing happened with George Benda of the Chelsea Group. Subcommittee reports were:

- ...Standard 55-Thermal Comfort should not set humidity based on health Criteria. SPC will not get into health issues via Std 55 and will not reference SSPC62.
- ...GPC 10: Hal Levin is looking for applications to his committee from individuals with lighting and acoustics expertise.
- ...The Environmental Health Committee's grant of \$107,000 to the University of Pittsburgh: no one in the committee has any knowledge of the status of the study; evidently, the principle investigator is not submitting required...E. Sterling will lead a symposium on "Building Commissioning"
- ...Dr. Susan Rose (DOE), will lead a symposium on "Risk Assessment: Any Number You Want!" at "IAQ'93". It's been a year since I recommended this topic to Susan.
- ...At the ASHRAE Winter Meeting of '94, Hal Levin (Chairman, GPC10) will conduct a seminar on "Guidelines and Standards".
- ...The Educational Subcommittee on Education received a proposal from Someone in Georgia to develop a learning module for IAQ for Middle Schools. After much discussion, it was agreed to pursue this proposal for inclusion in the Lower School science curriculum.

Seminar 27: Research Outside North America--M. Logue

Points of interest:

- ...Peter Simmonds of the Chartered Institute of Building Services Engineers (CIBSE) is currently conducting research in the area of heat recovery devices.
- ...Vic Crisp of the Building Research Establishment (BRE) in the U.K. said that BRE's role is to support the UK Secretary of State. Their current activities include extensive research in the area of health and safety in buildings.
- ...P. Ole Fanger, from the Technical University of Denmark described his groups activities:
 1. Staff: 43
 2. Conducting human chamber studies with ETS, monitoring dose and comfort.
 3. Studying displacement ventilation; specifically relative to bioeffluents and source emissions
 4. Attempting to identify pollution sources including those originating within the HVAC system
 5. Attempting to quantify the "olf"
 6. Conducting the "European IAQ Audit Project"; this project is attempting to identify pollution source strengths in buildings. It includes eight countries with 6 office buildings/country.

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Forum 16: Is there a Need for a System Design Manual for Compliance with Std SSPC62?--M. Logue

This was a round table discussion at which I was allowed to participate. It was generally agreed that a system design manual is necessary. Specific questions for this group to address are: determine acceptability of outdoor air; what to do about smoking in the building (I reminded the group that it had been decided by the Subcommittee on Health and Comfort that this decision should be deferred to other regulatory agencies). Gene Tucker (Chairman, SSPC62x) arrived later and stated that the new standard must be a "health-based" one. He went on to say that neither ventilation nor design can insure good IAQ.

One last comment, the ASHRAE BOARD passed a new rule affecting all members of "Standard or Guideline Committees". All members must now fill out a "Bias and Conflict of Interest Form" identifying all sources of income and financial or other interest which conflicts with the service of an individual.

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